# Setting Up the BayStack Instant Internet 400 Unit

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## USA requirements only

### Federal Communications Commission (FCC) Compliance Notice: Radio Frequency Notice

**Note**: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy. If it is not installed and used in accordance with the instruction manual, it may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case users will be required to take whatever measures may be necessary to correct the interference at their own expense.

## European requirements only

### EN 55 022 statement

This is to certify that the Nortel Networks BayStack Instant Internet 400 is shielded against the generation of radio interference in accordance with the application of Council Directive 89/336/EEC, Article 4a. Conformity is declared by the application of EN 55 022 Class A (CISPR 22).

**Warning:** This is a Class A product. In a domestic environment, this product may cause radio interference, in which case, the user may be required to take appropriate measures.

**Achtung:** Dieses ist ein Gerät der Funkstörgrenzwertklasse A. In Wohnbereichen können bei Betrieb dieses Gerätes Rundfunkstörungen auftreten, in welchen Fällen der Benutzer für entsprechende Gegenmaßnahmen verantwortlich ist.

**Attention:** Ceci est un produit de Classe A. Dans un environnement domestique, ce produit risque de créer des interférences radioélectriques, il appartiendra alors à l'utilisateur de prendre les mesures spécifiques appropriées.

**EC Declaration of conformity**

This product conforms to the provisions of the R&TTE Directive 1999/5/EC.

## Japan/Nippon requirements only

### Voluntary Control Council for Interference (VCCI) Statement

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## Taiwan requirements

### Bureau of Standards, Metrology and Inspection (BSMI) Statement

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頻干擾，在這種情況下，使用者會被要求採取某些適當的對策.

## Canada requirements only

### Canadian Department of Communications Radio Interference Regulations

This digital apparatus (BayStack Instant Internet 400) does not exceed the Class A limits for radio-noise emissions from digital apparatus as set out in the Radio Interference Regulations of the Canadian Department of Communications.

### Règlement sur le brouillage radioélectrique du ministère des Communications

Cet appareil numérique (BayStack Instant Internet 400) respecte les limites de bruits radioélectriques visant les appareils numériques de classe A prescrites dans le Règlement sur le brouillage radioélectrique du ministère des Communications du Canada.

### Canada CS-03 rules and regulations

**Notice**: The Industry Canada label identifies certified equipment. This certification means that the equipment meets telecommunications network protective, operational and safety requirements as prescribed in the appropriate Terminal Equipment Technical Requirements document(s). The Department does not guarantee the equipment will operate to the user's satisfaction.

Before installing this equipment, users should ensure that it is permissible to be connected to the facilities of the local telecommunications company. The equipment must also be installed using an acceptable method of connection. The customer should be aware that compliance with the above conditions may not prevent the degradation of service in some situations.

Repairs to certified equipment should be coordinated by a representative designated by the supplier. Any repairs or alterations made by the user to this equipment, or equipment malfunctions, may give the telecommunications company cause to request the user to disconnect the equipment.

Users should ensure for their own protection that the electrical ground connections of the power utility, telephone lines and internal metallic water pipe system, if present, are connected together. This precaution may be particularly important in rural areas.

**Caution**: Users should not attempt to make such connections themselves, but should contact the appropriate electric inspection authority, or electrician, as appropriate.

**Notice**: For equipment using loopstart lines, please note that the Ringer Equivalence Number (REN) assigned to each terminal device provides an indication of the maximum number of terminals allowed to be connected to a telephone interface. The termination on an interface may consist of any combination of devices subject only to the requirement that the sum of the Ringer Equivalence Numbers of all the devices does not exceed 5. The REN is located on the "FCC Rules Part 68" label located on the bracket of the module or on the back of the unit.

## Canada CS-03 -- Règles et règlements

**Avis**: L'étiquette d'Industrie Canada identifie le matériel homologué. Cette étiquette certifie que le matériel est conforme aux normes de protection, d'exploitation et de sécurité des réseaux de télécommunications, comme le prescrivent les documents concernant les exigences techniques relatives au matériel terminal. Le Ministère n'assure toutefois pas que le matériel fonctionnera à la satisfaction de l'utilisateur.

Avant d'installer ce matériel, l'utilisateur doit s'assurer qu'il est permis de le raccorder aux installations de l'entreprise locale de télécommunication. Le matériel doit également être installé en suivant une méthode acceptée de raccordement. L'abonné ne doit pas oublier qu'il est possible que la conformité aux conditions énoncées ci-dessus n'empêche pas la dégradation du service dans certaines situations.

Les réparations de matériel homologué doivent être coordonnées par un représentant désigné par le fournisseur. L'entreprise de télécommunications peut demander à l'utilisateur de débrancher un appareil à la suite de réparations ou de modifications effectuées par l'utilisateur ou à cause de mauvais fonctionnement.

Pour sa propre protection, l'utilisateur doit s'assurer que tous les fils de mise à la terre de la source d'énergie électrique, des lignes téléphoniques et des canalisations d'eau métalliques, s'il y en a, sont raccordés ensemble. Cette précaution est particulièrement importante dans les régions rurales.

**Avertissement**: L'utilisateur ne doit pas tenter de faire ces raccordements lui-même; il doit avoir recours à un service d'inspection des installations électriques, ou à un électricien, selon le cas.

**Avis**: Veuillez prendre note que pour tout appareillage supportant des lignes de type "loopstart," l'indice d'équivalence de la sonnerie (IES) assigné à chaque dispositif terminal indique le nombre maximal de terminaux qui peuvent être raccordés à une interface. La terminaison d'une interface téléphonique peut consister en une combinaison de quelques dispositifs, à la seule condition que la somme d'indices d'équivalence de la sonnerie de tous les dispositifs n'excède pas 5. Le REN figure sur l'étiquette "FCC Rules Part 68" située sur le support du module ou à l'arrière de l'unité.

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## Modular components used in this assembly

This product contains a base unit and possibly one or more of the following Communication and Network Connection Options Devices. Please refer to your specific product for a description of what option cards (if any) are included. Compliance Statements for all the following devices are on file and available on request.

# FCC Part 68 compliance statement

This equipment complies with Part 68 of FCC Rules. All direct connections to telephone network lines must be made using standard plugs and jacks compliant with FCC Part 68. Please note the following:

1. You are required to request service from the telephone company before you connect the unit to a network. When you request service, you must provide the telephone company with the following data:

    When you request T1 Service, you must provide the telephone company with:

    • The Facility Interface Code

    Provide the telephone company with all the codes below:

    • 04DU9-BN (1.544 MB, D4 framing format)
    • 04DU9-DN (1.544 MB, D4 framing format with B8ZS coding)
    • 04DU9-1KN (1.544 MB, ESF framing format)
    • 04DU9-ISN (1.544 MB, ESF framing format with B8ZS coding)

    The telephone company will select the code it has available.

    • The Service Order Code(s) (SOC): 6.0F
    • The required Universal Service Order Code (USOC) jack: RJ48C

When you request 56K/64K Service, you must provide the telephone company with:

• The Facility Interface Code: 04DU5-56/64
• The Service Order Code(s) (SOC): 6.0F

When you request 56K/64K Service, you must provide the telephone company with:

• The Facility Interface Code: 04DU5-56/64
• The Service Order Code(s) (SOC): 6.0F
• The required Universal Service Order Code (USOC) jack: RJ48S

When you request V.34 Service, you must provide the telephone company with:

• The required Universal Service Order Code (USOC) jack: RJ11C
• The make, model number, Ringer Equivalence Number (REN), and FCC Registration number of the unit

The REN helps you determine the number of devices you can connect to your telephone line and still have all of those devices ring when your number is called. In most, but not all, areas, the sum of the RENs of all devices should not exceed 5.0. To be certain of the number of devices you can connect to your line, you should call your local telephone company to determine the maximum REN for your calling area.

When you request ISDN "U" Interface Service, you must provide the telephone company with:

• The Facility Interface Code: 02IS5
• The Service Order Code(s) (SOC): 6.0F
• The required Universal Service Order Code (USOC) jack: RJ49C

When you request ISDN "S/T" Interface Service, you must provide the telephone company with:

• The Service Order Code(s) (SOC): 6.0N
• The make, model number, and FCC Registration number of the NT1

**Note the following:**

• The ISDN S/T cannot be directly connected to the network.
• The V.35 cannot be connected to the PSTN.
• The X.21 cannot be connected to the PSTN.

2.  Your telephone company may make changes to its facilities, equipment, operation, or procedures that could affect the proper functioning of your equipment. The telephone company will notify you in advance of such changes to give you an opportunity to maintain uninterrupted telephone service.

3.  If the unit causes harm to the telephone network, the telephone company may temporarily discontinue your service. If possible, they will notify you in advance, but, if advance notice is not practical, you will be notified as soon as possible and will be informed of your right to file a complaint with the FCC.

4.  You are required to notify the telephone company when you disconnect the unit from the network.

# UL listing/C-UL listing

This information technology equipment is UL-Listed and C-UL-Listed for the uses described in this and accompanying documents.

## Connecting an Instant Internet unit to the network

Important safety information

To avoid contact with electrical current:

*   Never install electrical wiring during an electrical storm
*   Never install telephone jacks in wet locations unless that jack is specifically designed for wet locations
*   Use caution when installing or modifying telephone lines
*   Use a screwdriver and other tools with insulated handles
*   You and those around you should wear safety glasses or goggles
*   Do not place telephone wiring or connections in any conduit, outlet or junction box containing electrical wiring

**Warning**:  Do not work on your telephone wiring if you wear a pacemaker. Telephone lines carry electrical current.

Installation of inside wire may bring you close to electrical wire, conduit, terminals and other electrical facilities. Extreme caution must be used to avoid electrical shock from such facilities. You must avoid contact with all such facilities.

*   Telephone wiring must be at least 6 feet from bare power wiring or lightning rods and associated wires, and at least 6 inches from other wire (antenna wires, doorbell wires, wires from transformers to neon signs), steam or hot water pipes, and heating ducts.
*   Before working with existing inside wiring, check all electrical outlets for a square telephone dial light transformer and unplug it from the electrical outlet. Failure to unplug all telephone transformers can cause electrical shock.
*   Do not place a jack where it would allow a person to use the telephone while in a bathtub, shower, swimming pool, or similar hazardous location.
*   Protectors and grounding wire placed by the service provider must not be connected to, removed, or modified by the customer.

## Specific information related to different types of communication connections

### Connecting an Instant Internet unit containing an analog modem

It is not necessary to notify the telephone company before installing the modem. However, the telephone company may request the telephone number(s) to which the unit is connected and the related FCC information including the FCC Part 68 registration number and the ringer equivalence number.

Be sure that the telephone line you are connecting the modem to is a standard analog line and not a digital (PBX), party, or coin telephone line. If the modem is malfunctioning, it may affect the telephone lines. In this case, disconnect the modem until the source of the difficulty is traced.

**Connecting an Instant Internet unit containing an ISDN modem with NT**

When connecting this version of the product to the network, avoid contact with the Telecommunications lead wire. Telephone wiring can carry dangerous voltage from electrical faults or lightning.

The product is equipped with a standard 8-pin RJ-49C jack for connection to the ISDN network.

If you need to add wiring to your facility, refer to the National ISDN Users Forum document NIUF 433-94 ISDN Wiring and Powering Guidelines (Residence and Small Business).

**Connecting an Instant Internet unit containing an ISDN modem without NT1**

This version of the product is equipped with two standard 8-pin RJ-45 jacks for connection to the NT1 (the BRI line can be attached to either jack, and the unused jack can be used to connect a second ISDN device).
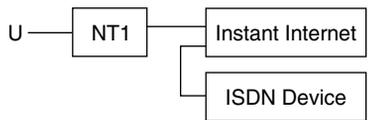


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At the product interface point, the interface cable must be wired "straight-through" (pin 1 at one end connected to pin 1 at the other end, pin 2 to pin 2, etc.), and must have at least the middle 4 pins (pins 2, 3, 4, and 5) connected. The cables included in your package are wired in this fashion.

Your NT1 must be properly connected to your ISDN service; check with your service provider.

If you need to add wiring to your facility, refer to the National ISDN Users Forum document NIUF 433-94 ISDN Wiring and Powering Guidelines (Residence and Small Business).

**Avis**: L'étiquette d'Industrí Canada identifie le matériel homologué. Cette étiquette certifie que le matériel est conforme à certaines normes de protection, d'exploitation et de sécurité des réseaux de télécommunications. Toutefois, le Ministére n'assure pas que le matériel fonctionnera a la satisfaction de l'utilisateur.

Avant d'installer ce matériel, l'utilisateur doit assurer qu'il soit permis de le raccorder aux installations de l'entreprise locale de télécommunications. Le matériel doit également être installé en suivant une méthode de raccordement acceptée. Dans certaíns cas, les fils intérieurs de l'entreprise utilisés pour un service individuel á ligne unique peuvent être prolongés au moyen d'un dispositif de raccordement homologué (cordon rallonge téléphonique interne). L'abonné ne doit pas oublier qu'il est possible que la conformité aux conditions énoncées ci-dessus n'empechent pas la dégradation du service dans certaines situations. Acluellement, les entreprises de télécommunication ne permettent pas que l'on raccorde leur matériel à des jacks d'abonné, sauf dans les cas précis prévus pas les tarrifs particuliers de ces entreprises.

Les réparations de matériel homologué doivent être effectuées par un centre d'entretien canadien autorisé désigné par le fournisseur. La compagnie de télécommunications peut demander á l'tilisateur de débrancher un appareil à la suite de réparations ou de modifications effectuées par l'utilisateur, ou à cause de mauvais fonctionnement.

Pour sa propre protection, l'utilisateur doit assurer que tous les fils de mise à la terre de la source d'énergie électrique, des lignes téléphoniques et des canalisations d'eau métalliques, s'il y en a, sont raccordés ensemble. Cette précautions est particuliérement importante dans les régions rurales.

**Avertissement**: L'utilisateur ne doit pas tenter de faire ces raccordements lui-même; il doit avoir recours aux services d'un électricien.

L'indice de charge (IC) assigné à chaque dispositif terminal indique, pour éviter toute surcharge, le pourcentage de la charge totale qui peut être raccordée à un circuit téléphonique bouclé utilisé par ce dispositif. La termination du circuít bouclé peut être constítuée de n'importe quelle combinaison de dispositifs, pourvu que la somme des indices de charge de l'ensemble des dispositifs ne dépasse pas 100.

L'indice de charge se trouve sur le modem.

# Contents

# Figures

# Tables

# Preface

This guide describes the BayStack™ Instant Internet 400 unit. This guide also describes what you do to install the Instant Internet™ hardware and to access the Internet.

## Before you begin

Before using this guide, you need to do two things. First, write down the model number and serial number of your Instant Internet unit. You will need this information if you call Nortel Networks Technical Support. Model and serial numbers are located on the rear panel of your Instant Internet unit.

**Model #:** _____

Example: CQ1001078

**Serial #:** _____

Example: I0200004F

Second, you must complete the steps outlined in . The steps include:

**1**  Preparing for Internet access

**2**  Selecting an Internet service provider

**3**  Selecting the type of connection to use

# Acronyms

The following acronyms are used in this guide:

| | |
|---|---|
| AC | alternating current |
| AUI | attachment unit interface |
| CHAP | Challenge Handshake Authentication Protocol |
| CSU | channel service unit |
| dBA | decibels audible |
| DIP | Dual Inline Pins |
| DSL | digital subscriber lines |
| DSU | digital (or data) service unit |
| IP | Internet Protocol |
| ISDN | Integrated Services Digital Network |
| ISP | Internet service provider |
| Kb/s | kilobits per second |
| LAN | local area network |
| LED | light-emitting diode |
| Mb/s | megabits per second |
| MP | Multilink Protocol |
| NAT | Network Address Translation |
| NT1 | Network termination type 1 |
| PAP | Password Authentication Protocol |
| POP | point of presence |
| PPP | Point-to-Point Protocol |
| PPPoE | Point-to-Point Protocol over Ethernet |
| PVC | permanent virtual circuit |
| ROM | read-only memory |
| WAN | wide area network |

# Related publications

For more information about using Instant Internet, refer to the following publications:

- *Important Notice for the BayStack Instant Internet Version 7.11* (Part number 307603-E)

  Provides instructions for viewing documentation and installing the Instant Internet software and third-party applications (Adobe Acrobat Reader, Netscape Communicator, and AniTa Terminal Emulator).

- *Installing the BayStack Instant Internet Management Software Version 7.11* (Part number 209226-B)

  Provides instructions for installing the Instant Internet software.

- *Using the BayStack Instant Internet Management Software Version 7.11* (Part number 300868-G)

  Provides an introduction to Instant Internet, instructions for administering the product, and procedures for using Instant Internet features.

- *Reference for the BayStack Instant Internet Remote Access Commands Version 7.11* (Part number 302005-F)

  Provides instructions and commands for remotely accessing Instant Internet.

- *BayStack Instant Internet Software and Documentation Version 7.11* CD (Part number 206664-D)

  Provides manuals for using and installing the Instant Internet software and third-party applications. The CD contains the following documents:

  — *Installing the BayStack Instant Internet Management Software Version 7.11*
  — *Setting Up the BayStack Instant Internet 100 Unit*
  — *Setting Up the BayStack Instant Internet 100-S Unit*
  — *Setting Up the BayStack Instant Internet 400 Unit*
  — *Setting Up the BayStack Instant Internet 400-S Unit*
  — *Using the BayStack Instant Internet Management Software Version 7.11*
  — *Reference for the BayStack Instant Internet Remote Access Commands Version 7.11*

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# How to get help

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|---|---|
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| North America | (800) 2LANWAN or (800) 252-6926 |
| Asia Pacific | (61) (2) 9927-8800 |
| China | (800) 810-5000 |

An Express Routing Code (ERC) is available for many Nortel Networks products and services. When you use an ERC, your call is routed to a technical support person who specializes in supporting that product or service. To locate an ERC for your product or service, go to the www12.nortelnetworks.com/ URL and click ERC at the bottom of the page.

# Chapter 1
# Introduction

This chapter introduces your Instant Internet 400 unit and describes package contents, available options for your Instant Internet unit, and any requirements and compatibility issues.

## Instant Internet package

The Instant Internet package contains:

- Instant Internet 400 unit
- Depending on the type of connection you ordered, your Instant Internet package contains one or more of the following connector cables:
    — RJ-11 cable (phone cord) for a dial-up connection
    — ISDN cable for an ISDN connection
    — RJ-45 cable for a 10BASE-T or 100BASE-T Ethernet connection
    — RJ-48 cable for a T1 or DDS connection

| → | **Note:** If you ordered your Instant Internet unit for use on a token ring network or with a V.35 or X.21 modem, you must provide the connection cable. For pinout diagrams for V.35 and X.21 adapter cables, refer to Appendix B, "Adapter cable pinout diagrams," on page 53. |
|---|---|

- *Important Notice for the BayStack Instant Internet Version 7.11* (Part number 307603-E)
- *Installing the BayStack Instant Internet Management Software Version 7.11* (Part number 209226-B)

- *BayStack Instant Internet Software and Documentation Version 7.11* CD (Part number 206664-D)

  For contents, see "Related publications" on page 19.

# Available options

The Instant Internet 400 is shipped with several options. The standard unit includes a full-duplex/half-duplex autonegotiating 10/100 megabits per second (Mb/s) Ethernet connection. Token ring units for LANs or routers are also available.

You can order your Instant Internet unit configured with one of the following:

- One or two internal V.90 analog modems
- Internal ISDN 128K card (with or without NT1)
- Internal DDS connection
- Internal T1 connection
- V.35, X.21 support of external synchronous devices (CSUs/DSUs)
- One or two token ring connections
- Second or third Ethernet connections (for an external router, cable modem, xDSL modem, and others)

> → **Note:** If your unit does not have an internal analog modem or ISDN card, disregard all references to dial-up account and dial-up configuration throughout this manual.

# Requirements and compatibility

Instant Internet supports the following Internet connection types:

- Dial-up PPP connection up to V.90
- ISDN connection using synchronous PPP and optional Multilink Protocol (MP) at up to 128 kilobits per second (Kb/s)
- Synchronous leased-line connection at speeds up to 2 Mb/s (T1, DDS, V.35, or X.21) using PPP or frame relay (using RFC 1490)
- PPPoE connection using an external Ethernet device to connect to an access concentrator.

→ **Note:** The speed of dial-up connections can vary internationally. Consult your local distributor for specifications.

# Chapter 2
# Installation preparation

This chapter describes the steps you should follow in preparing for Internet access, explains some decisions you need to make before you install your Instant Internet 400 unit, and provides an installation checklist and worksheet.

## Preparing for Internet access

To prepare for access to the Internet:

**1** Obtain installation and service from your local telephone company.

**2** Obtain an Internet connection from an Internet service provider (ISP).

**3** Obtain a cable to connect the Instant Internet unit to your local area network (LAN).

**4** Obtain the power cord from the Instant Internet packaging.

> → **Note:** Do not apply power to the Instant Internet unit until you have completed the installation steps from page 35.

Refer to "Instant Internet quick installation" on page 35 for more information.

# Making decisions

Before you can access the Internet with your Instant Internet unit, you must make the following decisions:

- Who will be your Internet service provider (ISP)?
- What type of connection will you use—dial-up connection (analog or ISDN), leased-line connection (T1, DDS, V.35, or X.21) built in to Instant Internet, cable modem, xDSL modem, PPPoE, or an external router?

## Selecting an Internet service provider

There are thousands of Internet service providers (ISPs) from which to choose. Nortel Networks maintains an updated list of the major, national ISPs and as many local ISPs as possible. You can choose an ISP from this list, or you can locate a different one. Either way, try to choose an ISP that has a local access number so that you do not have to pay long distance charges. You can look in the yellow page directory for local or regional ISPs, or you can call a national ISP and ask if it offers local dial-up access in your area.

> →  **Note:** Only a dial-up connection (analog or ISDN) requires this type of service from an ISP. If you are using a cable modem, xDSL modem, or external Ethernet device, you do not have to obtain dial-up service.

If your ISP is not on the selection list you see during Instant Internet installation, select the ! Default provider from the list. If you cannot connect to the Internet with the ! Default provider selected, do *one* of the following:

- Call Nortel Networks Technical Solutions Center at 800-2LANWAN, Express Routing Code 169#, 24 hours a day, 7 days a week, 365 days a year (see ).
- Send an e-mail message to *support@nortelnetworks.com*.

Be sure to have your provider's name, location, and contact person's phone number so that Nortel Networks can create a dial-up script specific to your ISP's access requirements and add your ISP to the list.

# Installation checklist

Use the checklist in Table 1 to ensure a smooth installation. As you check off each item, record the information in the "Installation worksheet" on page 29.

**Table 1**   Installation checklist

| ✔ | Item | Description |
|---|------|-------------|
| | Type of Account | Instant Internet can provide access to your entire network through a single Internet Protocol (IP) address for unlimited access to the Internet: |
| | | • If you want to use public IP addresses, request a network account. |
| | | • If you want to use Network Address Translation (NAT) or you are using the Instant Internet unit as an IPX-to-IP gateway, request a single-user account. |
| | | Your ISP will provide you with a user name, password, primary access phone number, optional alternate access phone number, and name server IP address. Record this information on page 29. |
| | Dial-up Protocols | If you are using a dial-up connection in North America, ensure that your ISP supplies true IP service using PPP protocols for analog and ISDN connections. ISDN requires the synchronous PPP protocol with authentication via Password Authentication Protocol (PAP) or Challenge Handshake Authentication Protocol (CHAP). |
| | | For a 128K connection, Multilink PPP must be supported. Some ISPs use their own proprietary protocols or, for ISDN, V.120 rate adaption. Instant Internet does not support these proprietary protocols. |
| | ISDN Service | When you obtain ISDN service, your telephone company may assign one or two Service Profile Identifier (SPID) numbers to your line. Record the SPID number(s) on page 29. |
| | Leased-Line Connection | Leased-line (T1, DDS, V.35, or X.21) connections require synchronous PPP or frame relay. The Instant Internet 400 unit supports 1 PVC for frame relay. |
| | T1 Connection | If you are using a T1 connection, ask your T1 service provider for the framing format, line encoding, data type, line build-out, rate multiplier, and line speed. Record this information on page 29. |

**Table 1** Installation checklist (continued)

| ✔ | Item | Description |
|---|------|-------------|
| | Connect-Time Charges | Some ISPs and local telephone companies charge a flat fee for unlimited connect time, and some charge fees according to the actual amount of time your Instant Internet unit is dialed in and connected. Be sure that you understand your ISP's and local telephone company's policies. |
| | PPPoE | If you are connecting using PPPoE, you must obtain a User Name and Password from your ISP. Record this information on page 29. |
| | Installation Information | If you choose an ISP from the Nortel Networks list, you need to give only the ISP's telephone number and your user name and password for access. |
| | | If you are using an analog or ISDN connection, you can choose ! Default as your provider and then enter your name servers. |
| | | If your ISP is not on the Nortel Networks list, call the Nortel Networks Technical Solutions Center at 800-2LANWAN, Express Routing Code 169#, and provide some additional information so that Nortel Networks can create a dial-up script specific to your ISP's access requirements. |
| | Application Information | Your ISP usually offers some additional services, which you might consider:<br>• Access to a NEWS server<br>• Access to a POP mail server (and an SMTP relay)<br>• Individual POP mail user accounts for each user<br>**NOTE:** Be aware that a single-user account from an ISP generally comes with only one POP e-mail account. You can arrange for additional e-mail accounts with your ISP. |

After completing this checklist, you are ready to begin installing the Instant Internet hardware.

## Installation worksheet

**ISP User Name:**  _____

*This is the user name you enter to log on to your ISP account.*

**ISP Password:** _____

*This is the password you enter to log on to your ISP account.*

**ISP Connection Phone Number:** _____

*This number is the primary phone number you dial to access your ISP account.*

**ISP Connection Alternate Phone Number:** _____

*This number is an alternate or backup phone number you dial to access your ISP account if the primary phone number is not working. This phone number is optional. Not every ISP supplies an alternate phone number.*

**ISP Name Server:** _____

**ISP Name Server** (optional):  _____

*The name server (or domain name server or DNS) is the numeric IP address of your IPS's name server(s). It follows the format* nnn.nnn.nnn.nnn *where* n *is a number between 0 and 255.*

**T1 Connection Information**

**Framing Format** (ESF or D4): _____

**Line Encoding** (B8ZS or AMI): _____

**Data Type** (Normal or Inverted): _____

**Line Build-Out** (in dB): _____

**Rate Multiplier** (64K or 56K): _____

**Line Speed** (in Kb/s): _____

*This information is available from your T1 service provider. If you are not using a T1 connection, you do not need to provide this information.*

**Telephone Company Information**

**ISDN SPID Number:** _____

**ISDN SPID Number:** _____

*SPID (Service Profile Identifier) numbers are provided by your telephone company when you install an ISDN line. Usually, two SPID numbers are provided, but sometimes one and sometimes even none is provided. Only those using an ISDN connection, need to provide this information.*

# Chapter 3
# Instant Internet 400 hardware installation

This chapter helps you get to know your Instant Internet unit and provides instructions for connecting your unit to your LAN or WAN according to the type of connection you are using and for mounting the unit in a rack.

Before you install the Instant Internet hardware, make sure that you are familiar with the physical and environmental specifications of the Instant Internet 400 unit. For more information, refer to Appendix A, "Technical specifications," on page 51.

## Getting to know your Instant Internet 400 unit

The front panel of your Instant Internet 400 unit has nine lights, or LEDs, that signal information about your unit. The Power LED is always lit when your unit is turned on. The other eight LEDs as well as the Power LED indicate various active or error conditions.

Figure 1 illustrates the front panel of the unit.

**Figure 1**   Front panel of the Instant Internet 400 unit



9276EA
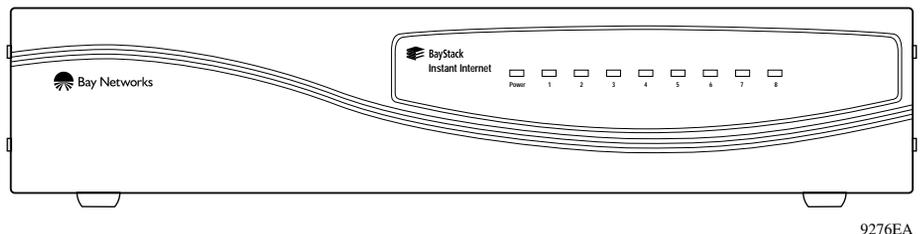
For a description of the LEDs, refer to Chapter 5, "LEDs: support and diagnostic functions," on page 47.

Switches and connectors are located on the rear panel of your unit as follows:

- At the top are four slots (A through D).
- At the bottom are the network cable connection, two LEDs, the attachment unit interface (AUI) connection, the configuration switches, the power plug connection, and the on/off switch.

Figure 2 illustrates the rear panel of the unit.

**Figure 2**   Rear panel of the Instant Internet 400 unit
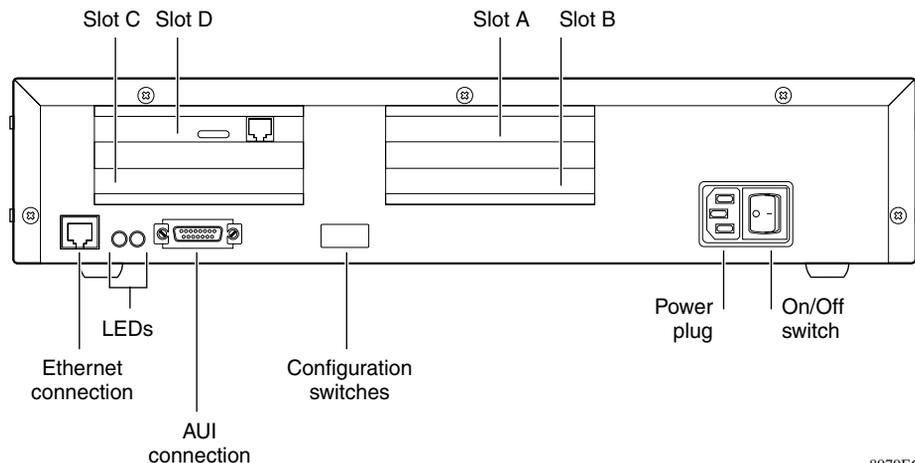


**Warning:** The Instant Internet unit contains a lithium battery. There is a danger of explosion if the battery is replaced incorrectly. The battery should be replaced only by factory authorized personnel.

## Interface cards

Depending on the configuration of your unit, you may have multiple interface cards in slots A through D.

**Note:** The interface card(s) in your Instant Internet unit may not look exactly like those depicted in the illustrations.

Table 2 shows the LAN interfaces available for your Instant Internet 400 unit.

**Table 2**  LAN interfaces

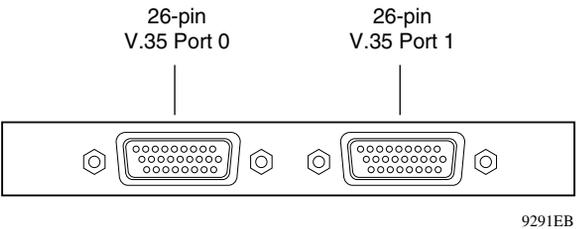| Interface name | Interface card | Type |
|---|---|---|
| Eth1 |  | Ethernet connection on the back of the unit. |
| Eth2<br>Eth3 |  | Ethernet interface card with a BNC connector and an RJ-45 connector. **Note:** On some Ethernet interface cards the BNC connector can be absent. **Note:** If you have a triple Ethernet unit, the Ethernet card in slot D is *Eth2* and the Ethernet card in slot C is *Eth3*. |
| Tok1<br>Tok2 |  | Token ring interface card with a 9-pin connector and an RJ-45 connector. **Note:** If you have a dual token ring unit, the token ring card in slot D is *Tok1* and the token ring card in slot C is *Tok2*. |
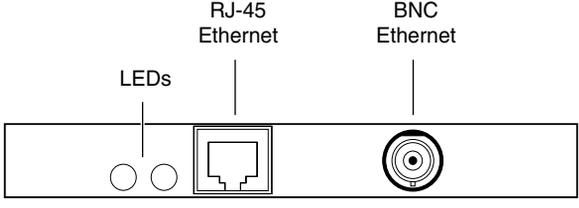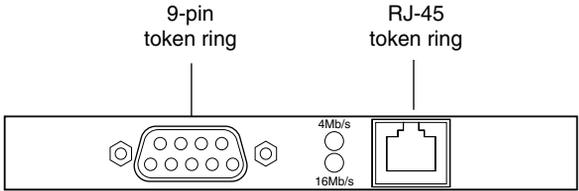
Table 3 shows the communication interface cards available for your Instant Internet 400 unit.

**Table 3** Communication interfaces

| Interface name | Interface card | Type |
|---|---|---|
| ISDN | RJ-45 ISDN<br><br>9287EB | ISDN interface card (United States) with one RJ-45 connector (does not support NT1). |
| ISDN | RJ-45 ISDN    RJ-45 ISDN<br><br>9288EB | ISDN interface card (international) with two RJ-45 connectors (supports NT1). |
| Dialup (Analog) | RJ-11 Telco    RJ-11 Phone<br><br>9289EB<br><br>**Note:** Depending on the type of analog modem card you have, the placement of the jacks may be reversed. Be sure to read the labels of the jacks before you plug in any cables. | Analog modem interface card with one RJ-11 connector for the phone (outgoing to modem) and one RJ-11 connector for the Telco (incoming from wall jack).<br><br>**Note:** If you have a dual analog unit, the first modem is located in slot A and the second modem is in slot B. |
| Serial-1 (port 0)<br>Serial-2 (port 1) | 26-pin X.21 Port 0    26-pin X.21 Port 1<br><br>9290EB | X.21 interface card (leased-line) with one 26-pin connector for X.21port 0 and one 26-pin connector for X.21 port 1. |
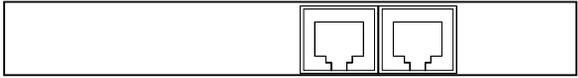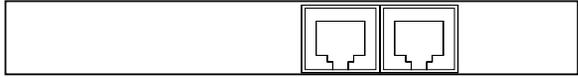
**Table 3**   Communication interfaces (continued)

| Interface name | Interface card | Type |
|---|---|---|
| Serial-1 (port 0)<br>Serial-2 (port 1) | 26-pin V.35 Port 0      26-pin V.35 Port 1<br><br>9291EB | V.35 interface card (leased-line) with one 26-pin connector for V.35 port 0 and one 26-pin connector for V.35 port 1. |
| Serial (port 0)<br>T1 | 26-pin V.35 Port 0    LEDs    RJ-48 T1<br><br>9292EB | T1 interface card (leased-line) with one 26-pin connector for V.35 port 0 and one RJ-48 connector for T1. |
| Serial (port 0)<br>DDS | 26-pin V.35 Port 0    LEDs    RJ-48 56K<br><br>9293EB | DDS interface card (leased-line) with one 26-pin connector for V.35 port 0 and one RJ-48 connector for 56K. |
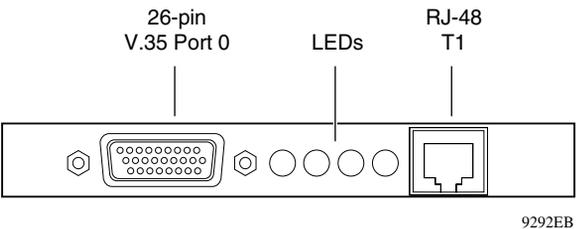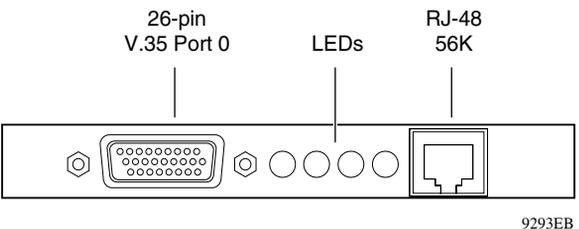
# Instant Internet quick installation

These steps will guide you through the general process of installing your Instant Internet hardware.

Be sure to choose a location near your router and LAN or WAN hubs and close to an electrical outlet.

> **Note:** Before you begin installation, be sure that the switch settings are set to normal operation. For information about configuring switch settings, refer to .

The communications connection is necessary to provide the link between your Instant Internet unit and your Internet service provider (ISP). To ensure a proper communications connection, make sure that you have ordered the appropriate following services:

*   Installation from your telephone service company (Telco)
*   Service from your Telco
*   Internet access service from your ISP

Be sure to review the information in "Installation checklist" on page 27.

If you experience problems during installation, unplug all connections, except the LAN connection, and then restart the Instant Internet unit.

> ➡ **Note:** *Do not* apply power to the Instant Internet unit until you have completed the installation steps.

You can mount your Instant Internet unit in an equipment rack or place it on a flat surface. If you choose not to mount the Instant Internet unit in a rack, be sure to install the unit's rubber feet. If the feet are not installed, stick the adhesive side of the feet on the spaces provided on the bottom of the unit. You need to use either the mounting brackets or the feet.

To install your Instant Internet hardware:

**1**   Do one of the following:

*   If you want to mount your Instant Internet unit in a rack, you must do so before you connect it to your LAN. Follow the procedure "Mounting your Instant Internet unit in a rack" on page 37 and then return to this procedure and continue with step 2.
*   If you do not want to mount your Instant Internet unit in a rack, place the unit on any appropriately level surface that can safely support the weight of the unit and attached cables. Make sure that there is adequate space around the unit for ventilation and access to cable connectors. Allow at least 2 inches (5.1cm) on each side for proper ventilation and 5 inches (12.7cm) at the back for power cord clearance and ventilation. Continue with step 2.

2    Attach one end of the communications cable (modem, ISDN, T1, DDS, Ethernet, token ring) to the appropriate connector on the Instant Internet unit.

3    Attach the other end of the communications cable to the appropriate source (phone jack, ISDN jack, T1 jack, DDS jack, cable modem, or external router).

4    Attach the Instant Internet unit to a hub on your LAN using an Ethernet cable (attach to Eth1) or a token ring cable (attach to Tok1).

> **Note:** A token ring cable is *not* included with your Instant Internet package.

5    Plug the power cord into the rear panel of the Instant Internet unit.

6    Plug the power cord into an AC wall outlet.

7    Turn on the Instant Internet unit.

When you turn on your Instant Internet 400 unit, the LEDs on the front panel illuminate. LED #2 glows amber when the unit is ready for setup. For information about setting up your unit, see *Installing the BayStack Instant Internet Management Software Version 7.11*

## Mounting your Instant Internet unit in a rack

To install your Instant Internet in an equipment rack, you will need a Phillips screwdriver (not included) and the brackets, screws, and washers provided in the rack mounting kit.

To mount your Instant Internet 400 in a rack:

1    Remove the three screws from the cover on each side of your Instant Internet unit as shown in Figure 3.

**Figure 3** Removing screws from cover of Instant Internet 400 unit



9088FC
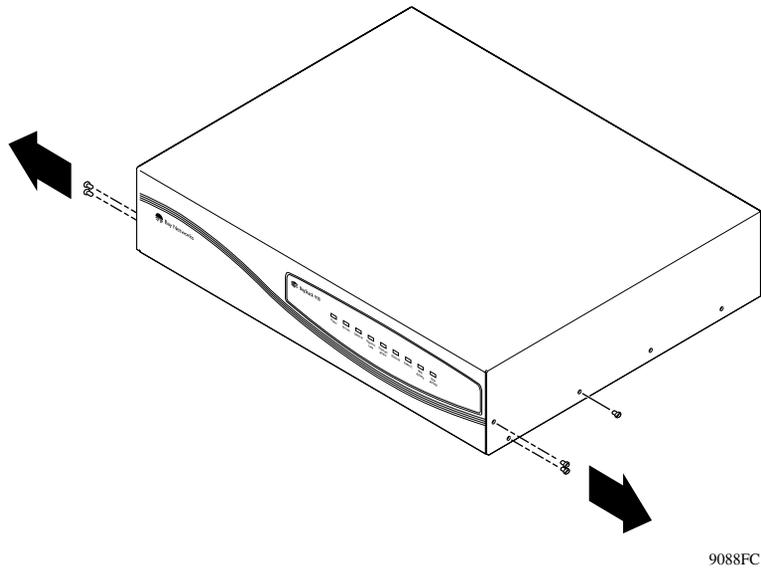
**2** Attach the front mounting brackets to your unit using the screws provided (Figure 4).

**Figure 4** Attaching mounting brackets to the Instant Internet 400 unit



9088FD
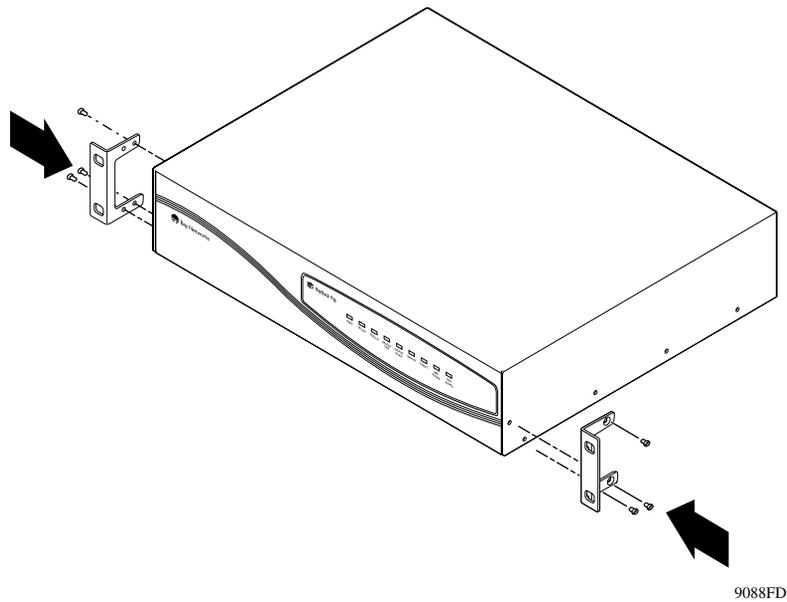
**3**  Position your unit in the rack horizontally.

Your unit should be facing out from the rack.

**4**  Align the holes in the mounting bracket with the holes in the rack.

**5**  Attach your unit to the front of the rack using the mounting screws and washers provided (Figure 5).

**Figure 5**  Attaching the Instant Internet 400 unit to the front of the rack
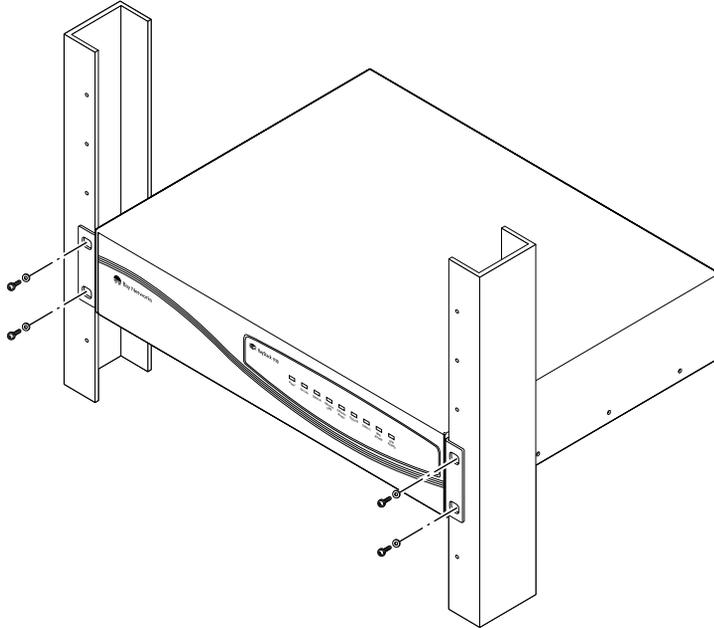


10046FA

# Chapter 4
# DIP switch settings

This chapter describes the Dual Inline Pins (DIP) switch settings for your Instant Internet 400 unit, including those for normal operation, for setting the token ring speed, and for resetting your unit's password and configuration settings.

## DIP switches

DIP switches enable you to configure your Instant Internet unit for a particular type of operation. There are eight DIP switches on the rear panel of your unit (Figure 6). The switches are labeled left to right from 1 to 8.

**Figure 6**   DIP switches on the rear panel of the unit
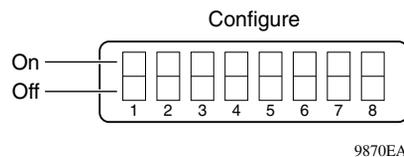


The switches have two possible positions: on and off. For the Instant Internet 400 unit, the on position is up and the off position is down. Use a small instrument with a fine point, such as a pen nib or small screwdriver, to move the switches to the proper position. Labels on the unit indicate whether a switch is on or off, and the specific switch pattern indicates a specific configuration item.

# Switch settings for normal operation

Leave all switches *off* for normal operation, as shown in Table 4.

**Table 4**   Switch settings for normal operation

|  | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| ON |  |  |  |  |  |  |  |  |
| OFF | • | • | • | • | • | • | • | • |

# Switch settings for token ring speed

If you need to set token ring speed to match the speed of your network, see the information in the following tables for examples of single and dual token ring switch settings.

## Single token ring switch settings

Table 5 and Table 6 show the switch settings for the token ring speed for a single token ring unit.

**Table 5**   Single token ring: 16 Mb/s

|  | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| ON |  | • |  | NA | NA | NA | NA | NA |
| OFF | • |  | • | NA | NA | NA | NA | NA |

**Table 6**   Single token ring: 4 Mb/s

|  | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| ON |  | • | • | NA | NA | NA | NA | NA |
| OFF | • |  |  | NA | NA | NA | NA | NA |

## Dual token ring switch settings

If you have a dual token ring unit and need to set the token ring speed, see one of the following tables:

- Table 7 (Dual token ring: 16 Mb/s Tok1 / 16 Mb/s Tok2)
- Table 8 (Dual token ring: 16 Mb/s Tok1 / 4 Mb/s Tok2)
- Table 9 (Dual token ring: 4 Mb/s Tok1 / 16 Mb/s Tok2)
- Table 10 (Dual token ring: 4 Mb/s Tok1 / 4 Mb/s Tok2)

**Table 7**   Dual token ring: 16 Mb/s Tok1 / 16 Mb/s Tok2

|     | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|-----|---|---|---|---|----|----|----|----|
| **ON** |   | • |   |   | NA | NA | NA | NA |
| **OFF** | • |   | • | • | NA | NA | NA | NA |

**Table 8**   Dual token ring: 16 Mb/s Tok1 / 4 Mb/s Tok2

|     | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|-----|---|---|---|---|----|----|----|----|
| **ON** |   | • |   | • | NA | NA | NA | NA |
| **OFF** | • |   | • |   | NA | NA | NA | NA |

**Table 9**   Dual token ring: 4 Mb/s Tok1 / 16 Mb/s Tok2

|     | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|-----|---|---|---|---|----|----|----|----|
| **ON** |   | • | • |   | NA | NA | NA | NA |
| **OFF** | • |   |   | • | NA | NA | NA | NA |

**Table 10**   Dual token ring: 4 Mb/s Tok1 / 4 Mb/s Tok2

|     | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|-----|---|---|---|---|----|----|----|----|
| **ON** |   | • | • | • | NA | NA | NA | NA |
| **OFF** | • |   |   |   | NA | NA | NA | NA |

# Switch settings for special configurations

During the power-up sequence, your Instant Internet 400 unit checks the settings of the switches. You can use the switches on your unit to:

- Reset the password (Table 11), which is useful if you forget the password.
- Reset the password and other user-defined system configuration (Table 12).
- Disable the switch settings for resetting the password and user-defined configurations (Table 13).
- Restore the original default factory settings (Table 14).

Table 11 shows the switch settings for resetting your unit's password.

**Table 11**   Switch settings for resetting the password

|  | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| ON | • | • | • |  | • |  | • |  |
| OFF |  |  |  | • |  | • |  | • |

Table 12 shows the switch settings for resetting your unit's password as well as some user-defined configurations.

**Table 12**   Switch settings for resetting the password and user-defined configurations

|  | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| ON | • | • | • |  | • | • |  |  |
| OFF |  |  |  | • |  |  | • | • |

**Caution:** If you use these switch settings to restore your unit, the following user-defined settings are removed or reset: password, hosts, port mappings, and unit configuration.

Table 13 shows the switch settings to disable the switch settings for resetting the password and user-defined configurations.

**Table 13**   Switch settings to disable switch settings for resetting the password and user-defined configurations

|      | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|------|---|---|---|---|---|---|---|---|
| ON   | • | • |   | • | • | • | • |   |
| OFF  |   |   | • |   |   |   |   | • |

Table 14 shows the switch settings for restoring your unit to factory default conditions.

**Table 14**   Switch settings for restoring factory default conditions

|      | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|------|---|---|---|---|---|---|---|---|
| ON   | • | • | • |   | • | • | • |   |
| OFF  |   |   |   | • |   |   |   | • |

> **Caution:** If you use these switch settings to restore your unit to factory default conditions, the following user-defined settings are removed or reset: password, hosts, port mappings, unit configuration, access restrictions, unit registration, and encryption authorization.
>
> If you purchased and installed the *3DES Encryption Module* (part number CQ1010005), you need to reinstall it.
>
> If you used the switch settings in Table 13 to disable the reset password and configuration switch settings, these settings are re-enabled.

# Resetting your Instant Internet unit

Before you reset your Instant Internet unit, be sure to back up the configuration. If you back up the configuration, you can easily restore it. For details, refer to *Using the BayStack Instant Internet Management Software Version 7.11*.

To reset your Instant Internet unit:

**1** Turn off your unit.

**2** Record the current switch settings of your Instant Internet unit.

**3** Set the switches to the configuration you want.

Refer to "Switch settings for special configurations" on page 44.

**4** Turn on your unit.

The LEDs on the front of your unit flash and then glow steadily amber, including the Power LED, when they completely match the sequence for the selected switch settings.

> ➡️ **Note:** If you used the switch settings in Table 13 to disable the reset password and configuration switch settings, the Power LED glows amber and LEDs 1–8 flash red in the sequence of the selected switch settings.

**5** Turn off your unit.

**6** Reset the switches using the information recorded in step 2.

Refer to Table 4 through Table 10 beginning on page 42.

**7** Turn on your unit.

# Chapter 5
# LEDs: support and diagnostic functions

This chapter describes how the LEDs work on your Instant Internet 400 unit and how you can use them to interpret activity on your unit.

## Interpreting LEDs

On the front panel of the Instant Internet unit, the nine LEDs indicate failures, configuration information, and operational status. When the unit is turned on, it displays any failures as red lights.

### LEDs at power-up sequence

If any failure is found during the power-up sequence, the Power LED glows amber, and one or more of LEDs 1 through 8 glow red. This failure indicates a hardware problem. Call the Nortel Networks Technical Solutions Center (page 20) for assistance.

> **Caution:** During normal operation, the Power LED glows green, except when updating the internal flash ROM. While updating the flash memory, the Power LED glows amber. This amber LED indicates that it is not safe to turn off the unit without potentially damaging the contents of flash memory.

## Recognizing single token ring speed

For a single token ring unit, LED 4 shows the ring speed for 30 seconds after the unit is turned on. Table 15 shows the single token ring speed for LED 4. For more information about token ring units, refer to "Getting to know your Instant Internet 400 unit" on page 31.

**Table 15**   Single token ring speed (first 30 seconds)

| LED # | Color | Appearance | Meaning |
|-------|-------|------------|---------|
| 4 | Green | Solid | 4 Mb/s (token ring speed) |
| 4 | Amber | Solid | 16 Mb/s (token ring speed) |

## Recognizing dual token ring speed

For a dual token ring unit, LED 4 shows the ring speed of the Tok1 token ring, and LED 5 shows the ring speed of the Tok2 token ring, each for 30 seconds after the unit is turned on. For more information about dual token ring units, refer to "Getting to know your Instant Internet 400 unit" on page 31.

Table 16 shows the dual token ring speed for LED 4, and Table 17 shows the dual token ring speed for LED 5.

**Table 16**   Dual token ring (Tok1) speed (first 30 seconds)

| LED # | Color | Appearance | Meaning |
|-------|-------|------------|---------|
| 4 | Green | Solid | 4 Mb/s (Tok1 ring speed) |
| 4 | Amber | Solid | 16 Mb/s (Tok1 ring speed) |

**Table 17**   Dual token ring (Tok2) speed (first 30 seconds)

| LED # | Color | Appearance | Meaning |
|-------|-------|------------|---------|
| 5 | Green | Solid | 4 Mb/s (Tok2 ring speed) |
| 5 | Amber | Solid | 16 Mb/s (Tok2 ring speed) |

# LEDs during operation

After the power-up sequence is complete, the LEDs indicate status and activity during operation as shown in Table 18.

**Table 18**   LED status and appearance during operation

| LED # | Color | Appearance | Meaning |
|-------|-------|------------|---------|
| Power | Green | Solid | Unit has electrical power and is turned on. |
| Power | Green and Amber | Solid Green and Flashing Amber | Unit is updating flash ROM. DO NOT TURN OFF until light returns to green. |
| 1 | Green | Blinking | Unit is operating normally. |
| 2 | Green | Solid | Unit is ready to service clients. |
| 2 | Green and Amber | Solid Green and Flashing Amber | Unit is communicating with clients. |
| 2 | Amber | Solid | Unit is ready to run setup but cannot service clients (normally occurs before unit has been configured). |
| 3-8 | Green | Solid | Indicated interface (see Note below) is online. |
| 3-8 | Green | Flashing | Indicated interface (see Note below) is dialing or attempting connection. |
| 3-8 | Green and Amber | Solid Green and Flashing Amber | Traffic is on the indicated interface. |
| 3-8 | Red | Solid | Indicated interface (see Note below) has failed. |

→ **Note:** The "indicated interface" is the interface associated with the LED's number. This information is available in the main dialog box of the iiSetup program. For more information, refer to *Using the BayStack Instant Internet Management Software Version 7.11*.

# Appendix A
# Technical specifications

This appendix describes the physical and environmental specifications for your Instant Internet 400 unit.

## Physical specifications

The Instant Internet 400 unit is 17 inches wide by 15.25 inches deep and 3.875 inches high (19-inch rack-mountable, 2-rack units).

## Environmental specifications

The operating and nonoperating environment for the Instant Internet 400 unit is as follows:

- Operating Temperature: 10° to 40° C maximum
- Nonoperating Temperature: -44° to 66° C maximum
- Operating Humidity
  — 20% minimum to 80% maximum
  — Relative Humidity: noncondensing
- Nonoperating Humidity
  — 10% minimum to 95% maximum
  — Relative Humidity: noncondensing
- Operating Altitude: 8,000 feet (2,438 meters) maximum
- Nonoperating Altitude: 30,000 feet (9,144 meters) maximum
- Acoustic Noise: 55dBA at 1 meter

# Appendix B
# Adapter cable pinout diagrams

This appendix describes the pinout settings for the V.35 and X.21 adapter cables.

## Adapter cable part numbers

If you ordered your Instant Internet 400 unit for use with a V.35 modem or X.21 modem, you must provide the connection cable. You can have a cable made according to the pinout diagrams in this appendix or you can order a cable from Nortel Networks using the following part numbers:

- V.35 Adapter Cable—Part Number CQ2118001
- X.21 Adapter Cable—Part Number CQ2118004

# V.35 adapter cable

Figure 7 shows the pinout settings for a V.35 modem adapter cable (part number CQ2118001)

**Figure 7**   V.35 adapter cable pinout diagram

**(H) DB26 (Male)**
**Amp Pin # 748365-1**

**V.35 Connector**
**(Male)**

| DTE DB26 Pin | V.35 Pin | Signal |
|---|---|---|
| 1 | A | CGND |
| 7 | B | SGND |
| 4 | C | RTS |
| 5 | D | CTS |
| 6 | E | DSR |
| 8 | F | DCD |
| 20 | H | DTR |
| 2 | P | TDA |
| 3 | R | RDA |
| 14 | S | TDB |
| 16 | T | RDB |
| 24 | U | ETA |
| 17 | V | RCA |
| 11 | W | ETB |
| 9 | X | RCB |
| 15 | Y | TCA |
| 12 | AA | TCB |

DTE

9108EA
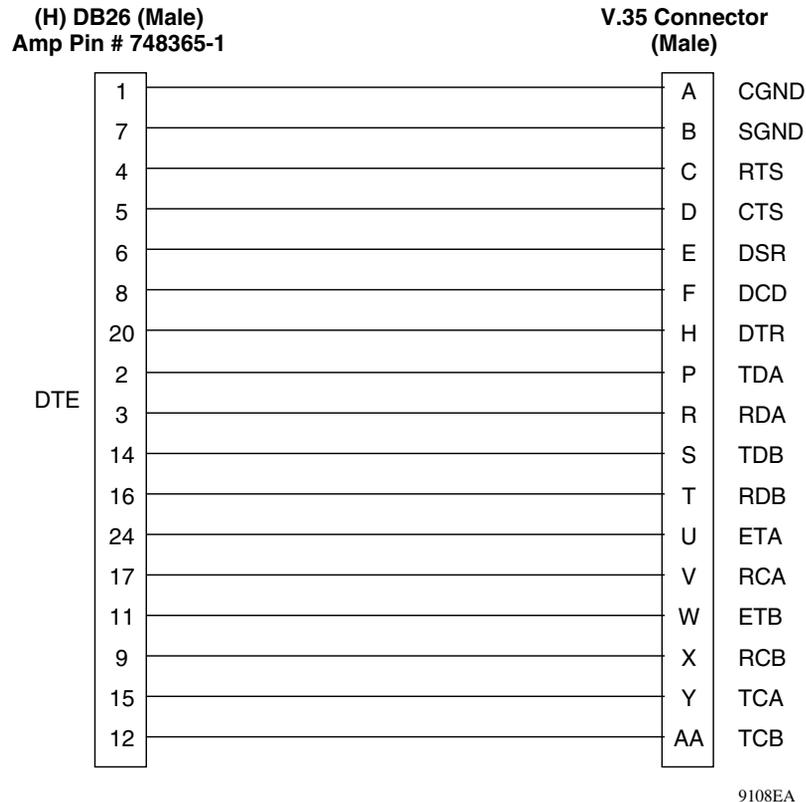
# X.21 (DCE) adapter cable

Figure 8 shows the pinout settings for an X.21 modem adapter cable (part number CQ2118004).

**Figure 8**  X.21 (DCE) adapter cable diagram.

9109EB

# Index

## Symbols

## Numbers

## A

## B

## C

## D